

**GENETIC RESOURCES OF SOME
SPICES IN GHANA:
ORIGIN, CHARACTERISTICS
AND CONSERVATION**



***AFRAMOMUM* (*AFRAMOMUMMELEGUETA* *ELEGUETA*)**



Fig. 1 Aframomum plant with mature fruits (red) and immature fruits (green).



Fig. 2 Dried fruits and grains of Aframomum

Common Name: Grain of Paradise

Family: *Zingiberaceae*

Origin: West Africa

Habit: Herbaceous plant growing in tufts, reaching 1m high. Seeds are small blackish-brown, aromatic and prickly.

Propagation: It is propagated by the rhizomes or seeds. Shade loving with red fruits when mature and harvested. Immature fruits are green.

Processing: The pods are dried and the black seeds removed and crushed (fig.2).

Uses: Used as spice in foods and in the preparation of several herbal medicine. The fruit is used for the treatment of boils, rheumatism, bone fractures. Roots are used for chest pains. Seeds are used to treat wounds, numbness and anaemia. The whole plant is used for coughs.

Conservation: As living plant in field.

***CINNAMON* (*CINNAMOMUM ZEYLANICUM*)**



Fig. 3 Cinnamon tree



Fig. 4 Dried Cinnamon bark and ground product.

Common name:
Cinnamon

Family: Lauraceae

Origin: China and Japan but has spread to

Indonesia and Malaysia. It is a native of Sri Lanka and South West India.

Habit: It is an evergreen deciduous tropical tree that can grow to a height of 50 meters (Fig. 3). The surface of the bark is smooth grey

brown with aromatic smell. Leaves - glossy green, leathery, ovate, opposite, sub-opposite or alternate and spirally arranged. Seedling growth is rapid with a tap and lateral roots. Open pollinated by insects. Tolerates water logging and drought for short period and shade tolerant. It is grown on well drained soil of low fertility.

Propagation: It can be grown from seed and stem cuttings. Germination of seeds ranged from 5-15 days and nursed for 8-12 months. Spacing is 2-4 m by 2-4 m. Harvesting takes place at the beginning of rainy season and the stumps are allowed to re-grow.

Processing: Leaves and bark of mature tree are removed, dried for 2-3 weeks and grounded into powder (fig. 4). Oil can be extracted from the leaves and the bark.

Uses: Leaves can be used to repel insects. Oil can be manufactured from bark, leaves and roots. The dried barks can be used in curry powders and for flavouring confectionery. Oil is used in medicinal products. Bark is boiled and the extract taken as beverage.

Conservation: It is conserved as living plant in field.



Fig. 5 Dried seeds of *Monodora Myristica*

AFRICAN NUTMEG *(MONODORA MYRISTICA)*

Common Name: Calabash nutmeg or African Nutmeg

Family: *Annonaceae*

Origin: Africa

Habit: Tree, deciduous, oval shaped leaves, rounded at base. Flowers - large spikes, petals yellow and red, the three inner spotted red outside and green inside. Fruits - round and green which develop into roundish fruits with many seeds which drop upon maturity.

Propagation: Hard coated seeds soaked overnight before sowing directly into polythene bags or seed beds.

Processing: Seeds removed from the pods, washed, air dried for 2-3 weeks and grounded into powder (fig. 5)

Uses: Spice used in preparation of herbal medicine and as a local perfume. Seeds used for treatment of anaemia, haemorrhoids, sexual weakness, wounds and numbness. Roots used for treatment of arthritis.

Conservation: Conserved as living plant in field.

NUTMEG (*MYRISTICA FRAGRANS* HOUTT)



Fig. 6 Tree with mature fruits



Fig. 7 Nuts and seedlings

Common Name: Nutmeg

Family: *Myristicaceae*

Origin: Native of Molluccas and has spread to Granada, Trinidad, Sumatra, Mauritius, Indonesia and India.

Habit: Tree, 10 -18 m high with green branches. Leaves - leathery, yellowish, and olive green, ovate and aromatic, bluish beneath, 5-12 cm long. Flowers - axillary, pale yellow pear-like fleshy fruit (about 5 cm in length) which opens in 2 halves showing the red pulp (Fig. 6). Mace surrounds brown hard shelled seeds. Kernel of the seeds is borne on female tree. Sex of the seedlings cannot be distinguished agro-morphologically till at the reproductive stage (6-8 years).

Propagation: The seeds are placed in concrete boxes filled with wood shavings to germinate. The germinated seeds are nursed in polythene bags filled with topsoil and placed under shade. Seedlings may also be propagated using the approach grafting method with known sex which comes into fruition in 3-4 years.

Processing: The mature fruit dehisces to release two components: the red aril (mace) and the nut (Fig. 7). The mace is removed from the nut and air dried for about 6 weeks to become yellow and grounded into powder. The seed is air dried till it rattles and then cracked to remove the seed which is dried for above 4 weeks and grounded into powder.

Uses: Nutmeg is grated in small quantities to flavour milk dishes and cakes. The mace is flavoured for use with savoury dishes in pickles and ketchups. Nutmeg can be used medicinally and have stimulate carminative, astringent properties. It is used in tonics. The husk (pericarp) is made into sweet meat and jellies. The mace is grounded (whole or broken) and used to flavour cakes, biscuits and bread. The seed yields a fixed oil nutmeg butter which is solid at ordinary temperature and is used in ointments and perfumery. Both oil and butter contains myristicin which is narcotic and poisonous.

Conservation: Nutmeg is conserved as living plant in field.

BLACK PEPPER (*PIPER NIGRUM*)



Fig. 8 Black pepper (*Piper nigrum*) plants with berries



Fig. 9 Black pepper products (Black and White pepper)

Common Name: Black pepper

Family: *Piperaceae*

Origin: Native of West Ghats of India, spreading now to Brunei, Malaysia, Indonesia, Cambodia and Singapore.

Habit: Tropical perennial woody climber, 10 m or more (Fig. 8). Thrives in humid tropics with well distributed rainfall and on soils ranging from heavy clay to light sandy clays, well drained. Flowers are unisexual and bi-sexual. Fruits are globose drupe with pulpy mesocarp, turning first red then black when dead. Dry seeds without mesocarp; germinates in 2-3 weeks. Fruits develop in 8-9 months and stimulated by well distributed rainfall and adequate fertility.

Propagation: Propagated by stem (12-30 months old) cuttings 5-7 cm long taken from the apices of the orthotropic shoots. Cuttings are planted in the field, 2-4 m spacing, during the rainy season, supported by stakes 3-6 m high, to give temporal shade.

Processing: In Black pepper, the mature fruits are harvested when the fruits start ripening. The fruits are covered with polythene sheets (3-4 days) for fermentation and separation of the seeds from the stalks. It is dried in the sun for 3-4 days and then grounded to fine powder (fig. 9). In white pepper, the harvested fruits are soaked in water for 2 days, changing the water daily, followed by the depulping and washing of the seeds with clean water. The depulped seeds are dried for 3-4 days and grounded to obtain white pepper.

Uses: Used as a condiment and stimulating the flow of saliva and gastric juice. It is used in pickles, ketch-up, sauces, for seasoning dishes and sausages. It can be used as a preservative in curing meat and in medicine as a carminative and febrifuge. Pepper oils can be distilled from the fruit and has a mild taste. The fruit is used to treat lumbago, bronchitis, catarrh and seeds for male sexual impotence and boils. Roots for chest pains and leaves for wounds. Stem bark used to treat dyspepsia.

Conservation: Black pepper is conserved as living plant in field.

TETRAPLEURA TETRAPTERA (*TETRAPLEURA TETRAPTERA*)

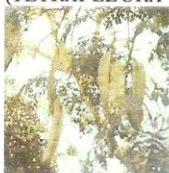


Fig. 10 *Tetrapleura tetraptera* Plant and fruits



Fig. 11 *Tetrapleura tetraptera* fruits

Common Name: Tetrapleura

Family: *Leguminosae*

Habit: Dioecious tree reaching 15-20 m high. Fruits form winged pods, 15 cm long. Female trees are shorter than male (fig. 10).

Propagation: Propagated using seeds. Seeds sown in propagation boxes and germinate after 1 week, and can be transferred into polythene bags after 5 weeks, and planted out after another 3 weeks.

Processing: Fruits are dried (Fig.11) and used for preparing syrup .

Uses: The bark is use to treat gastric ulcer, dysentery and fruit is used to treat malaria. The fruits are also used as jams, spices, animal feed, the potash for soap production and the seed as a flavouring agent.

Conservation: As living plant in the field.

AETHIOPIAN PEPPER (*XYLOPIA AETHIOPICA*)



Fig. 12 Ethiopian pepper seedling and fresh fruits.



Fig. 13 Dried fruits and seeds of Ethiopian pepper

Common Name: Ethiopian pepper

Family: *Annonaceae*

Origin: West Africa

Habit: It is an evergreen tree that can grow to a height of 10m, taking 4-5 years to start bearing fruits.

Propagation: Propagated by seeds which are nursed and transplanted. (Fig. 12) and takes 4-5 years to start bearing fruits. The fruits are borne in a bunch clusters with several elongated fingers.

Processing: Fruits are harvested as ripening begins, dried and grounded into powder (fig. 13).

Uses: Powder used as spice and in the preparation of herbal medicine.

Conservation: Conserved as living plant in field.